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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering.

MONTHLY NEWS LETTER

Vol. 5.

January 25, 1936

No. 5

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: INCOME TAX RETURNS :
:

: In compliance with the requirements of the :
: Commissioner of Internal Revenue, Treasury Depart- :
: ment, this Bureau will submit to the Bureau of :
: Internal Revenue, Form 1099, covering the salary :
: and travel accounts paid each employee for the :
: calendar year 1935. This report will be made on :
: the accrual basis, that is, it will show the :
: amount of salary earned from January 1 to December :
: 31, 1935 and the amount of travel expenses in- :
: curred during this period, regardless of when the :
: checks were issued. The report will be made on or :
: about February 1, 1936 at which time a copy of :
: Form 1099 will be mailed to each employee for his :
: information. :
:

: This subject was fully covered in Bureau :
: Memorandum No. 39 dated September 3, 1935, a copy :
: of which was furnished each employee. :
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(Confidential information, for Bureau staff only)

Not released for publication

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George R. Boyd is inspecting farms in Virginia, North Carolina, and Georgia, in connection with the farm operating efficiency project and collecting data for a proposed bulletin on the subject.

Chas. A. Bennett is in Washington looking after matters in connection with patents on ginning machinery. While here he conferred with the Office of Exhibits of the Department in regard to plans for an exhibit of cotton ginning investigations for the Texas exhibit at Dallas next fall.

Good progress is being made by R. C. Young and V.L. Stedronsky on preparations for the special experimental ginning tests on Pima cotton at Sacaton, Ariz. The installation of the test machinery is almost completed.

While inspecting buildings being erected for the Bureau of Plant Industry J.E. Miller of the Washington office visited the cotton ginning laboratories at Stoneville, Miss., on January 9 and 10.

David S. Weaver has secured a year's leave of absence from North Carolina State College at Raleigh to serve the Bureau as Extension Specialist in rural electrification. Cooperating with the Rural Electrification Administration he will carry rural electrification information to the Extension Services and Agricultural Engineering Departments of the various States.

Secretary Wallace has recently appointed Mr. Weaver, secretary of the newly formed national farm committee to advise with Morris L. Cooke, Rural Electrification Administration, on agricultural policies in connection with the rural electrification program.

Final plans have been prepared and the contract let for the construction of the All-American Canal desilting works, which will consist of a series of sedimentation basins in which a number of Dorr clarifiers are operated. The rate of deposition of sediment in moving water, especially in slowly moving water, is an important problem with the Bureau of Reclamation in connection with the design of sedimentation basins. R. L. Parshall is now making a study at the Imperial Valley experimental flume, to determine the relations between depth of water, velocity of the stream, and the mean silt content at various points along the axis of the flume. An adjustable sampling apparatus is used at intervals of 16 feet along the axis of the flume over a distance of 80 feet. Simultaneous samples are taken at the same depth and the conditions of flow observed where the samples are taken, thus giving the silt content in a horizontal plane. Simultaneous samples are also taken at the six stations in a vertical plane by means of sampling tubes set in a vertical standard at intervals of one foot, the lowest being $2\frac{1}{2}$ feet above the floor.

Preliminary draft of manuscript for a bulletin on "Irrigation Wells" was submitted by Carl Rohwer. The report covers the investigation of possibilities of installing a pumping plant, the flow of ground water, the hydraulics of irrigation wells, the construction of irrigation wells and of test wells, the developing and testing of wells, the use of battery wells and gravel-envelope wells, and the cost of construction of irrigation wells.

Harry G. Nickle made two trips to the lower Rio Grande Valley during December for the purpose of assisting the Texas Board of Water Engineers in starting a WPA project sponsored by them relating to ground water.

In connection with evaporation experiments at La Verne, in southern California, A.A. Young reports that evaporation in a covered reservoir showed the lowest rate during the hot month of August when the outside evaporation was the highest. Since August, inside evaporation increased from 0.9 inch to 2.5 inches per month, an amount equal to the loss from an uncovered pan. This increase seems to be due to the water temperature being higher than air temperature.

M. R. Lewis made a trip to Baker County, Oregon, where he conferred with a group of landowners constituting a subcommittee of the county committee which is planning to hold an economic conference this winter regarding a proposed long-time program for a study of soils, irrigation, and drainage.

A report entitled "Provisions for Snow Cover Measurement for Idaho and Those Portions of Wyoming and Nevada Occupied by Snake River Watershed" was submitted by J.C. Marr.

Tests made by Colin A. Taylor as to effect upon soil moisture, of long and short intervals of irrigation of subtropical fruit, indicated that the long-interval field plots had rather severe stresses for water developed before each irrigation. This is shown by the fact that the moisture content of soil from the dry tree lines of the long-interval field plots was almost as low as the ultimate wilting point as determined by sunflower plants. On each orchard, the moisture content of the un-irrigated soil along the tree lines was, at the end of the season, driest on the long-interval plots and wettest on the short-interval plots, which shows that the forces developed during the summer season in the trees on the short-interval plots were never great enough to reduce the moisture content of the dry tree lines very far down into the wilting range.

J.G. Sutton, who is supervising the work of the 36 CCC drainage camps located in the central States, reports that arrangements have been completed whereby the districts with which the camps are cooperating will furnish, free of cost to the camps, 52 drag-line machines to be operated by the camp personnel on ditch maintenance work. In addition^{to} the drag line excavators, the districts are also purchasing materials required to repair various types of structures, and numerous tractors, and teams for use on the smaller ditches. During the past 3 months the cash value of the cooperation thus furnished has averaged over \$20,000 per month. Such cooperation indicates that the work of the camps is appreciated by the local people.

J. T. Olsen reported to the Washington office for duty as Assistant Drainage Engineer January 21. He has been assigned to administrative work in the Division of Drainage. Prior to joining the staff

of the bureau. Mr. Olsen was an engineer appraiser for the Federal Land Bank at Louisville, Kentucky. He is a graduate of Iowa State College and has had 15 years experience in drainage work.

John C. Cotton, Junior Engineer, who has been in charge of the construction of sewers at the Beltsville Research Center has been transferred to the E.C.W. payroll of the Division of Drainage, effective January 27, and will have charge of preparing office reports and checking field reports in connection with the CCC camps.

Levels over the test plots at the Belle Glade Experiment Station, Fla., show a continuation of the subsidence of the peat soil, according to B.S. Clayton. Elevations over the plots averaged 15.59 feet in May, 1932; 15.44 in October 1933; and 15.14 in November 1935. With a normal water table the subsidence has been 0.45 foot in $3\frac{1}{2}$ years or about 0.13 foot per year. Evaporation results for the year 1935 showed total evaporation and transpiration as follows:

Cane tank No. 1 = 46.51 inches

" " No. 2 = 46.55 "

Bare soil tank No. 3 = 39.15 inches (partly shaded)

Alfalfa tank No. 4 = 45.11 " (poor stand of alfalfa)

Open pan = 70.57 "

The rainfall was 48.81 inches

R.B. Gray left Washington on January 20 to inspect work in progress on insect pest control machinery in New York and New Jersey. Conferences were held with L. H. Worthley, of the Bureau of Entomology and Plant Quarantine, at White Plains, N.Y., and with Frank Irons, at Moorestown, N.J.

In cooperative studies at Geneva, N.Y. the past season with cannery peas planted with a grain drill, fertilizer was most effective when placed in a band 2.5 inches to one side of the row. It was also found that application of fertilizer in the furrow with the seed as locally practiced injured the seed and seedlings and gave lower yields than the plots receiving no fertilizer. For placements of the fertilizer 2.5 inches to the side, and in the furrow with the seed and for unfertilized peas the yields were respectively, 2,877, 935, and 2,246 pounds of vined fancy grade peas per acre. The bureau installed special attachments on a grain drill for use in this study.

In a previous news letter E.M. Dieffenbach mentioned the design and construction of a hydraulic-control device for large spray guns under high pressures. The experimental model has been completed and tested and gives quick positive control on a gun of the type that requires full opening and closed positions only; but the control as now designed is too sensitive to give a variable cone of spray.

Talks were given during the month by S.W. McBirney on the experimental work of the sugar beet production machinery project at the Farm Advisors' Conference at Berkeley, Calif., and on mechanical harvesting of sugar beets at the Pacific Coast section A.S.A.E. meeting at Davis, Calif. The Northern California Sugar Beet Conference at San Francisco was also attended by Mr. McBirney.

D. A. Isler reports that the framework of the 160 ft. by 160 ft. screened cage for pink bollworm cultural control experiments at Presidio, Texas, was completed Dec. 31. The cage is being constructed with W.P.A. funds.

Preparations are being made to close down the forage drying work at the Iberia Livestock Experiment Farm, Jeanerette, La. Considerable equipment will be moved to the Farm Tillage Machinery Laboratory at Auburn, Ala., where Mr. Gordon has been assigned to work under Mr. Randolph.

An automatic grain and fungicide feeder developed at Arlington Experiment Farm, Va., for use in connection with the treating of seed grain, is being shipped to Ithaca, N.Y., for demonstration purposes in response to a request from plant pathologists of the Department. This machine was used the past season by a seed firm in Richmond, Va., in treating approximately 25,000 bushels of wheat. Three new machines of this type have been constructed by the seed firm referred to for use in treating wheat, oats, and barley.

Tests of temperature, humidity, and air movement in farmhouses were started by W. V. Hukill and M.J. LaRock, at Madison, Wis., This is one phase of a study being undertaken by the Division of Structures in cooperation with the Experiment Station of the University of Wisconsin. This information should disclose the best method of improving farmhouses so as to increase the comfort of the occupants. Mr. Hukill has returned to Washington and J.W. Simons will assist Mr. LaRock in installation of thermocouples and anemometers in a number of typical farmhouses which will later be remodeled by their owners.

The study of corn pressures in cooperation with the Ohio State University has shown the following results, as reported by J.R. McCalmont who conducted the tests. In a crib 6 feet wide with cross braces 10 feet apart, the floor supported 72 percent, 58 percent and 44 percent, respectively, of the total load when there was 8, 16, and 24 feet of corn in the crib, while in a crib 8 feet wide with cross braces 6 feet apart the floor loads were 79 percent, 57 percent, and 46 percent, respectively. The height-width ratio of the 6-foot crib was 4 to 1. Unit pressures on the walls and floor appear to have reached almost their maximum values, indicating that in cribs of greater height-width ratio, the additional load would be carried largely by friction on the crib walls and/or cross braces.

This Bureau is participating in a Department project on the storage of wheat on farms as part of the research program under the Bankhead-Jones Act. It is expected that field experiments will be carried on in cooperation with the experiment stations of Kansas, North Dakota and Illinois, and the Arlington Experiment Farm in Virginia. This is a Department and not a Bureau project. Other bureaus actively participating are Agricultural Economics and Plant Industry.

Bulletins issued:

Modernizing Farmhouses. Farmers' Bulletin 1749

Roof Coverings for Farm Buildings and Their Repair. F.B. 1751.

Utilization and Cost of Power on Mississippi and Arkansas

Delta Plantations. Technical Bulletin 497.